IN THE CLAIMS:

Previously cancelled claims 47-50.

51. (Previously Presented) An LED lamp for generating incoherent visible light, comprising:

a chip, having a substrate that is light-passing to all visible light;

an inorganic semiconductor structure comprising: an n-layer formed over the substrate, a p-layer over the n-layer, and an active region between the layers generating LED light;

p conductor spread over substantially all of the p-layer; contacting the p-layer;

a plurality of spaced metal n tracks on the semiconductor structure, each having a lower surface that feeds the n-layer; at least one of the n tracks feeding light-generating portions of the semiconductor structure, at the n-layer, that are on opposite sides of the n track;

a pair of terminals; and

metallic interconnection causing all light-generating parts of the chip to produce light simultaneously when a potential is applied across the pair of terminals.

52. (Previously Presented) An LED lamp according to claim 51, wherein at least one of said n tracks is in a trench in the semiconductor structure, the trench having a side wall that is at least partly covered with light-passing non-semiconductor material.

53. (Previously Presented) An LED lamp according to claim 51, wherein said light-generating portions are electrically connected in parallel.

54. (Previously Presented) An LED lamp according to claim 51, wherein the semiconductor structure comprises a plurality of light generating sections that are electrically connected in series.

55. (Previously Presented) An LED lamp according to claim 51, wherein said pair of terminals is on the chip.

56. (Previously Presented) An LED lamp according to claim 51, wherein the chip has a power rating of 1 watt or more.

57. (Currently Amended) An LED lamp according to claim 51, wherein each of said light-generating portions has an associated underlying interface with the substrate and is arranged such that light rays generated in the light-generating portion and subjected to total internal reflection at the associated interface escape the semiconductor structure through the associated interface.

58. (Previously Presented) An LED lamp according to claim 51, including a body of fluorescent material receiving light that passes from the semiconductor structure into the substrate.

59. (Previously Presented) An LED lamp according to claim 51, including a layer of fluorescent material coating all of a lower face of the substrate.

60. (Previously Presented) An LED lamp according to claim 51, wherein the n-layer has surfaces that are inclined to a major face of the substrate, the inclined surfaces being in contact with light passing non-semiconductor material and distant from outer sides of the semiconductor structure.

61. (Previously Presented) An LED lamp according to claim 51, wherein said tracks comprise contact side tabs.

62. (Previously Presented) An LED lamp according to claim 51, wherein the p-layer is one piece and extends to, or near to, four outer sides of the chip.

63. (Previously Presented) An LED lamp according to claim 51, including an elongate metal part feeding the p-layer and running between a pair of said tracks.

64. (Previously Presented) An LED lamp according to claim 63, wherein the elongate metal part and the pair of tracks are of about the same length.

65. (Previously Presented) An LED lamp according to claim 51, wherein a top of the chip is next to a thermally-conductive plate, the thermally-conductive plate acting as a heat sink for the chip.

66. (Previously Presented) An LED lamp according to claim 51, wherein a plurality of said n tracks are inclined to each other and meet.

67. (Previously Presented) An LED lamp according to claim 51, wherein a pair of said n tracks are oblique to each other and meet.

68. (Previously Presented) An LED lamp according to claim 51, wherein said p conductor comprises a light-passing conductor layer spread over substantially all of the p-layer and p tracks feeding the light-passing conductor layer.

69. (Previously Presented) An LED lamp according to claim 68, wherein said p tracks are interleaved with said n tracks.

70. (Previously Presented) An LED lamp according to claim 51, wherein at least one of said n tracks is in a trench in the semiconductor structure, the trench extending through the p-layer and the active region and having a floor surface parallel to a major surface of the substrate.

71. (Previously Presented) An LED lamp according to claim 51, including first and second trenches in the semiconductor structure each containing an associated one of said metal n tracks, the first trench being inclined to the second trench.

72. (Previously Presented) An LED lamp for generating incoherent visible light, comprising:

a chip, having a substrate that is light-passing to all visible light;

an inorganic semiconductor structure comprising: an n-layer formed over the substrate, a p-layer over the n-layer, and an active region between the layers generating LED light;

p conductor spread over substantially all of the p-layer, contacting the p-layer;

several spaced metal n contacts on the semiconductor structure feeding the n-layer; at least one of the n contacts being in an associated cavity in the semiconductor structure that extends through the p-layer and the active region and feeding light-generating portions of the semiconductor structure, at the n-layer, that are on opposite sides of the n contact;

a pair of terminals; and

metallic interconnection causing all light-generating parts of the chip to produce light simultaneously when a potential is applied across the pair of terminals.

73. (Previously Presented) An LED lamp according to claim 72, wherein for each of said n contacts there is associated conductor means on the p-layer that extends from one side of the metal n contact to an opposite side of the metal n contact.

74. (Previously Presented) An LED lamp according to claim 72, wherein said cavities have side walls at least parts of which are in contact with light-passing dielectric material.

75. (Previously Presented) An LED Lamp according to claim 72, wherein each said cavity includes an associated metal part comprising one of said n contacts, the metal part extending from a bottom of the cavity to at least a top of the cavity and hugging a side wall of the cavity.

76. (Previously Presented) An LED lamp according to claim 72, wherein for at least one pair of said n contacts there is a conductor part

feeding the p-layer and spanning almost all of a distance between the pair of metal n contacts.

77. (Previously Presented) An LED lamp according to claim 72, wherein the chip has a power rating of 1 watt or more.

78. (Previously Presented) An LED lamp according to claim 72, wherein said pair of terminals is on the chip.

79. (Currently Amended) An LED lamp according to claim 72, wherein each of said light-generating portions has an associated underlying interface with the substrate and is arranged such that light rays generated in the light-generating portion and subjected to total internal reflection at the associated interface escape the semiconductor structure through the associated interface.

80. (Previously Presented) An LED lamp according to claim 72, wherein most of all light harvested from the semiconductor passes out of the chip through a lower surface of the substrate.

81. (Previously Presented) An LED lamp according to claim 72, wherein light from the semiconductor structure passes through the substrate to a body of fluorescent material that is under the substrate.

82. (Previously Presented) An LED lamp according to claim 72, wherein said cavity has at least one side wall that is at an obtuse angle to a top of the p-layer, as measured through semiconductor.

83. (Previously Presented) An LED lamp according to claim 82, wherein the obtuse angle is at least 110 degrees.

84. (Previously Presented) An LED lamp according to claim 83, wherein the cavity contains dielectric material having a refractive index less than 1.3 in contact with said at least one side wall.

85. (Previously Presented) An LED lamp according to claim 83, wherein there is a light-passing dielectric layer on the side wall.

86. (Previously Presented) An LED lamp according to claim 85, including a metallic reflector at the dielectric layer.

87. (Previously Presented) An LED lamp according to claim 82, including light-passing dielectric material on at least part of the side wall.

88. (Previously Presented) An LED lamp according to claim 82, wherein the semiconductor structure comprises a plurality of light-generating sections that are electrically connected in series.

89. (Previously Presented) An LED lamp according to claim 82, wherein each of said n contacts is in an associated cavity that extends into the n-layer.

90. (Previously Presented) An LED lamp according to claim 82, wherein said cavity is a trench.

91. (Previously Presented) An LED lamp according to claim 82, including a light-passing dielectric layer at a top of the chip and a heat sink at a top of the dielectric layer.

92. (Previously Presented) An LED lamp for generating incoherent visible light, comprising:

a chip, having a substrate that is light-passing to all visible light; the substrate having first and second outer sides opposite each other;

an inorganic semiconductor structure comprising: an n-layer formed over the substrate, a p-layer over the n-layer, and an active region between the layers generating LED light;

a plurality of n metal parts on the semiconductor structure, each having an under surface feeding the n-layer, at least one of the n metal parts extending from a vicinity of the first outer side to a vicinity of the second outer side and being between light-generating portions of the semiconductor structure;

at least one p conductor on the semiconductor structure feeding the semiconductor structure at the p-layer and extending from a vicinity of the first outer side to a vicinity of the second outer side;

all light-generating parts of the chip producing light simultaneously when the lamp is turned on.

93. (Previously Presented) An LED lamp according to claim 92, including a trench in the semiconductor structure having side walls, at least parts of the side walls being covered with dielectric material.

94. (Currently Amended) An LED lamp according to claim 92, wherein each of said light-generating portions has an associated underlying interface with the substrate and is arranged such that light rays generated in the light-generating portion and subjected to total

internal reflection at the associated interface escape the semiconductor structure through the associated interface.

95. (Previously Presented) An LED lamp according to claim 94, including fluorescent material receiving light from the chip.

96. (Previously Presented) An LED lamp according to claim 92, including a converter spread on all of a lower major face of the substrate, the converter comprising fluorescent material and converting at least part of the received light to light of a different color.

97. (Previously Presented) An LED lamp according to claim 92, wherein the substrate has third and fourth outer sides that are opposite to each other and that meet the first and second outer sides, and wherein there is a metallic part feeding the semiconductor structure at the n-layer and extending from the vicinity of the third outer side to that of the fourth outer side.

98. (Previously Presented) An LED lamp according to claim 92, including a metallic part feeding the semiconductor structure at the p-layer and extending from a vicinity of the third outer side to a vicinity of the fourth outer side.

99. (Previously Presented) An LED lamp according to claim 92, wherein the semiconductor structure comprises a plurality of light generating sections that are electrically connected in series.

100. (Currently Amended) An LED lamp for generating incoherent visible light, comprising:

a chip, having a substrate that is light-passing to all visible light;

an inorganic semiconductor structure comprising: an n-layer formed over the substrate, a p-layer over the n-layer, and an active region between the layers generating LED light; the semiconductor structure having a refractive index at least 20% higher than that of the substrate;

p conductor spread over substantially all of the p-layer; contacting the p-layer;

several spaced metal n contacts on the semiconductor structure, each having a lower surface feeding the n-layer; at least one of the n contacts having light-generating portions of the semiconductor structure on opposite sides of it; and wherein:

each of the light-generating portions has an associated underlying interface with the substrate and is arranged such that light rays generated in the light-generating portion and subjected to total internal reflection at the associated interface escape the semiconductor structure via the associated interface; and

all light-generating parts of the chip produce light simultaneously when the lamp is turned on.

101. (Previously Presented) An LED lamp according to claim 100, wherein the n-layer has surfaces that are inclined to a major face of the substrate, the inclined surfaces being in contact with light passing non-

semiconductor material and distant from outer sides of the semiconductor structure.

102. (Previously Presented) An LED lamp according to claim 101, including metal reflectors at said inclined surfaces.

103. (Previously Presented) An LED lamp according to claim 100, including fluorescent material receiving light from the chip.

104. (Previously Presented) An LED lamp according to claim 100, wherein light from the semiconductor structure passes through the substrate to a body of fluorescent material that is under the substrate.

105. (Previously Presented) An LED lamp according to claim 100, including a layer of fluorescent material spanning all of a lower major face of the substrate.

106. (Previously Presented) An LED lamp according to claim 100, wherein the semiconductor structure comprises a plurality of light generating sections that are electrically connected in series.

107. (Previously Presented) An LED lamp according to claim 100, wherein the chip has a power rating of 1 watt or more.

108. (Previously Presented) An LED lamp according to claim 100, wherein the n-layer has surfaces that are oblique to a major face of the substrate, the oblique surfaces being in contact with light passing non-semiconductor material and distant from outer sides of the semiconductor structure.

109. (Previously Presented) An LED lamp for generating incoherent visible light, comprising:

a chip, having a substrate that is light-passing to all visible light;

an inorganic semiconductor structure comprising: an n-layer formed over the substrate, a p-layer over the n-layer, and an active region between the layers generating LED light; the semiconductor structure being arranged as several elements (E, TE);

p conductor spread over substantially all of the p-layer, contacting the p-layer;

first conductor means at a top of the chip interconnecting a first pair (E6, E9, TE8, TE 10) of said elements so that the first pair are driven together,

second conductor means interconnecting a second pair (E1, E2; TE1, TE2) of said elements at the p-layer;

a pair of terminals; and

metallic interconnection causing all light-generating parts of the chip to produce light simultaneously when a potential is applied across the pair of terminals.

110. (Previously Presented) An LED lamp according to claim 109, including a heat sink at a top of the chip.

111. (Currently Amended) An LED lamp according to claim 109, wherein each of said elements has an associated underlying interface with the substrate and is arranged such that light rays generated in the

element and subjected to total internal reflection at the associated interface escape the semiconductor structure through the associated interface.

112. (Previously Presented) An LED lamp according to claim 109, wherein said first conductor means is part of the chip.

113. (Previously Presented) An LED according to claim 109, wherein an anode of one of said elements is connected to a cathode of another of the elements by connecting conductor.

114. (Previously Presented) An LED lamp according to claim 113, including a track running along a trench in the semiconductor structure that is between a pair of said elements.

115. (Previously Presented) An LED lamp according to claim 109, comprising a fluorescent converter at a major face of the substrate.

116. (Previously Presented) An LED lamp according to claim 109, wherein more than 50% of the chip generates light, as viewed normal to the layers, and wherein the chip has a power rating of 1 watt or more.

117. (Previously Presented) An LED lamp according to claim 109, wherein at least one of said elements has a triangular top face.

118. (Previously Presented) An LED lamp for generating incoherent visible light, comprising:

a chip, having a substrate that is light-passing to all visible light;

an inorganic semiconductor structure comprising: an n-layer formed over the substrate, a p-layer over the n-layer, and an active region

between the layers generating LED light of a wavelength of 487 nm or less; the semiconductor structure being arranged as a plurality of light-generating segments;

for each of said segments, at least one opaque n conductor on the segment feeding the segment at the n-layer and at least one opaque p conductor on the segment feeding the segment at the p-layer;

conductor joining said segments in series; and

fluorescent material receiving light that is generated by said active region and that passes into the substrate.

119. (Previously Presented) An LED lamp according to claim 118, including an elongate conductor contact running in and along a trench that is between light-generating portions of the semiconductor structure.

120. (Previously Presented) An LED lamp according to claim 118, wherein said fluorescent material is in a layer.

121. (Previously Presented) An LED lamp according to claim 120, wherein said layer is at the chip.

122. (Previously Presented) An LED lamp according to claim 118, including a conductor layer spread over substantially all of the p-layer, contacting the p-layer.

123. (Previously Presented) An LED lamp according to claim 122, wherein said conductor layer is light-passing.

124. (Previously Presented) An LED lamp for generating incoherent visible light, comprising:

a chip, having a substrate that is light-passing to all visible light;

an inorganic semiconductor structure comprising: an n-layer formed over the substrate, a p-layer over the n-layer, and an active region between the layers generating LED light; the semiconductor structure being arranged as several elements (E, TE);

light-passing conductor spread over and contacting the p-layer;

for each of said elements, a conductor on the element contacting the element at the n-layer, the contacting conductor being between light-generating portions of the semiconductor structure for at least one of the elements;

opaque conductor at a top of the chip interconnecting a pair (E6, E9; TE8, TE 10) of said elements so that the pair are driven together,

a pair of terminals; and

metallic interconnection causing all light-generating parts of the chip to produce light simultaneously when a potential is applied across the pair of terminals.

125. (Previously Presented) An LED lamp according to claim 124, including fluorescent material for altering the color of light from the chip.

126. (Previously Presented) An LED lamp according to claim 125, wherein said fluorescent material is in a layer.

127. (Previously Presented) An LED lamp according to claim 124, wherein said opaque conductor comprises metal connecting an anode of one of said elements to a cathode of another of said elements.

128. (Previously Presented) An LED lamp according to claim 127, wherein said connecting metal is on the chip.